Iowa Department of Natural Resources
Environmental Protection Commission

ITEM **5** **DECISION**

TOPIC **Contract – University of Iowa Hygienic Laboratory – 2007 Ambient Monitoring and Laboratory Services**

The Department requests Commission approval of a $1,116,342 contract with the University of Iowa Hygienic Laboratory to conduct ambient water monitoring on streams, lakes, and wetlands.

The objective of this program is to conduct regular water quality monitoring on Iowa's streams, lakes, and wetlands to determine the status and trends in water quality of these systems. The Clean Water Act requires states to monitor and assess all waters of the state for beneficial uses including recreational, aquatic life, and drinking water uses. This contract provides for several aspects of monitoring and assessment to determine the quality of water resources including:

- Monitoring at 76 stream sites throughout Iowa for basic water chemistry, nutrients, total suspended solids, bacteria, and limited pesticide sampling.
- Monitoring at 132 lakes throughout Iowa for basic water chemistry, nutrients, phytoplankton, zooplankton, and suspended sediments.
- Monitoring at 65 wetlands in the north-central portion of Iowa to develop an assessment framework to determine reference condition, indices of biotic integrity, and status of chemical contamination. Monitoring includes a wide spectrum of nutrients, herbicides, insecticides, PCBs, and metals in water and wetlands sediments.
- Monitoring at lakes in Iowa where restoration activities are planned or currently active. Monitoring will document pre-restoration condition as well as improvements in water quality, vegetation, and aquatic life due to restoration.
- Snapshot monitoring on selected watersheds as part of the IOWATER volunteer monitoring program.
- Monitoring at Hickory Hills in Tama County to determine the effectiveness of sediment retention structures for lake protection.
- Laboratory support for Contaminated Sites and Underground Tanks sections

Funding for this contract comes from the Environment First Infrastructure Funds – Water Quality Monitoring Funds and EPA funds (106, Brownfield), LUST Trust Fund, RSIP Grants, State Hazardous Waste Remedial Funds, and Land Recycling Program fees.

Mary Skopec
Section Supervisor
Water Monitoring and Assessment
Iowa Geological Survey and Land Quality Bureau
Environmental Services Division

June 10, 2007

DESCRIPTION	VARIABLE PAYMENT AGREEMENT AMOUNT *
Stream Water Quality Monitoring	
Fixed Monitoring - Monthly - Analytical (52 sites)	$180,000
CITY Monitoring - Monthly - Analytical (24 sites)	$79,200
Fixed Monitoring - Monthly-Field	$133,000
Lake Monitoring	
Ambient Lakes (~132 lakes)	$242,500
DNR Lakes (~370 samples)	$49,950
Wetland Monitoring - Analytical (~65 samples)	$99,400
Shallow Lakes - Analytical (~70 samples)	$11,000
Hickory Hills Monitoring	
Analytical Costs	$7,500
Field Sampling Costs	$3,500
Special Studies (WQSPEC)	$150,000
Shipping and Handling	$4,000
Miscellaneous Field Equipment As Needed	$5,500
Contaminated Sites Laboratory Support	$48,100
Underground Tanks Laboratory Support	$20,000
Sub-totals	$1,033,650
Facilities and Administrative Costs@8%	$82,692
Totals	$1,116,342
COMPLETE COSTS - ESTIMATED	**$1,116,342**

This contract is entered is between the Iowa Department of Natural Resources (DNR) and University of Iowa (Contractor). The parties agree as follows:

Section 1 IDENTITY OF THE PARTIES

1.1 Parties. DNR is authorized to enter into this contract. DNR's address is: Wallace State Office Building, 502 East 9th Street, Des Moines, Iowa 50319.

University of Iowa, a public university, is organized under the laws of the State of Iowa and authorized to do business in the State of Iowa. University Hygienic Laboratory (UHL or Contractor) is a department of the University of Iowa, and its address is 102 Oakdale Campus, H101 OH, Iowa City, Iowa 52242-5002.

1.2 Project Managers. Each party has designated a Project Manager, who shall be responsible for oversight and negotiation of any contract modifications, as follows:

DNR Project Manager:
Dr. Mary Skopec
Geological Survey Bureau
109 Trowbridge Hall
Iowa City, IA 52242-1319
(319) 335-1579
mskopec@igsb.uiowa.edu

Contractor Project Manager:
Michael D. Schueller
University Hygienic Laboratory
102 Oakdale Campus, #101 OH
Iowa City, IA 52242-5002
(319) 335-4389
michael-schueller@uiowa.edu

Section 2 STATEMENT OF PURPOSE

2.1 Authority. DNR has the authority to enter into these contracts according to the provisions of Iowa Code section 455B.103(3).[1]

2.2 Purpose. To assist DNR in assessing the condition of water bodies in the state of Iowa. Assistance will include sampling of streams, wetland, and lakes for a variety of water chemistry parameters to determine the status and trends in quality for these three systems.

Section 3 DURATION OF CONTRACT

[1] Iowa Code section 455B.103 states, in relevant part, that "[t]he director shall: 3) Contract, with the approval of the commission, with public agencies of this state to provide all laboratory, scientific field measurement and environmental quality evaluation services necessary to implement the provisions of this chapter, chapter 459, and chapter 459A."

3.1 Term of Contract. The term of this contract shall be July 3, 2007 through June 30, 2008, unless terminated earlier is accordance with the Termination section of this contract.

3.2 Approval of Contract. If the amount of compensation to be paid by DNR according to the terms of this contract is equal to or greater than $25,000.00 (twenty five thousand dollars), then performance shall not commence unless by July 2, 2007 this contract has been approved by the Environmental Protection Commission.

3.3 Renewal. DNR shall have the sole option to renew and extend this contract for subsequent periods, adding up to no more than 6 years total, by executing a signed contract prior to the expiration of this contract.

Section 5 STATEMENT OF WORK

Statement of Work. Contractor shall perform the following tasks related to water quality sampling as described in Contractor's proposal, which is attached as Exhibit A and incorporated as a part of this Contract.

Failure by Contractor to complete the above-designated portions of its obligations by the Task Milestone Dates set out in Exhibit A or failure of the Contractor to make reasonable progress toward completing the remainder of the Statement of Work described in Exhibit A shall constitute material breach of this Contract by Contractor and shall be grounds for DNR to immediately terminate this Contract for cause.

If Contractor deviates from the Statement of Work described in Exhibit A, then Contractor shall inform DNR in writing within 10 days of the deviation.

Exhibit A

STATEMENT OF WORK

Part 1. Sampling Schedule

1. UHL shall collect and analyze stream grab samples from 54 non-city locations on a fixed day, if possible, each month as specified in Table 1 for sites and Table 2 for parameters. Samples collected as part of this activity will be coded as **01WQFMM**.

2. UHL shall collect and analyze stream grab samples from 24 city locations on a fixed day, if possible, each month as specified in Table 3 for sites and Table 2 for parameters. Samples collected as part of this activity will be coded as **08WQCITY.**

3. UHL shall collect and analyze lake water column samples from 132 lakes in the state of Iowa as specified in Table 4. Samples will be collected three times during the summer of 2007. UHL will analyze lake water samples for parameters specified in Table 5. All samples collected as part of lake monitoring activities will be coded as **IGS IOWA LAKES**.

4. UHL shall analyze samples for parameters specified by Department staff. The total cost of these samples shall not exceed $150,000. These samples will be collected as part of follow-up monitoring to verify results of regular fixed monitoring or to investigate other sources of water contamination not covered elsewhere in this scope of work. Samples collected for this activity will be coded as **WQSPEC.**

5. UHL shall collect and analyze samples from automated samplers placed at Hickory Hills Park in Tama County from late spring through the fall. Samples collected for this activity will be coded as **WQSPEC Hickory Hills**.

6. UHL shall analyze samples for 65 wetlands collected by The Department. Samples collected for this activity will be coded as **DNR WETLANDS.** These water and sediment samples will be analyzed for the parameters specified in Table 6.

7. The Department, in conjunction with IDNR Fisheries, will collect monthly water samples from selected lakes in the state of Iowa. These samples will be submitted to the UHL for analysis. Samples collected for this activity will be coded as **DNR LAKES.** These water samples will be analyzed for the parameters specified in Table 7.

8. UHL shall analyze samples of water, soils, soil-gas, solvents and solid wastes collected by the Department during contaminated sites investigations. The samples will be tested for parameters as specified by the collector. Samples submitted for analysis will be coded **WMSF**.

9. UHL shall analyze approximately 150 liquid samples and solid samples collected by Department staff primarily during investigations of petroleum leaks from underground storage tanks. The samples will be analyzed to determine the composition of the contaminant material. Samples collected through this activity will be coded as **WQUST.**

Table 1. Non-City Stream Sampling Locations

Stream Name	Ambient Monitoring Station Locations	River Basin[1]	STORET #
E. Fork Des Moines River	County Rd. B63 bridge north of St. Joseph	DSM	10550001
West Fork Des Moines River	County Rd. two miles south of Humboldt	DSM	10460001
Boone River	County Rd. R27 bridge, 6.5 mi NE of Stratford	DSM	10400001
North Raccoon River	County Rd. D46 bridge, Section 13/24, south of Sac City	DSM	10810001
Beaver Creek	NW 70th Avenue bridge, two miles east of Grimes	DSM	10770001
South Raccoon River	Bridge 0.75 mi SE of Redfield	DSM	10250001
North River	County Rd. R57 bridge, SE of Norwalk at USGS gage.	DSM	10910002
Middle River	USGS gage 1.5 mi west of Highway 65-69, near Indianola	DSM	10910001
South River	State Highway 92 bridge near Ackworth	DSM	10910003
Whitebreast Creek	Three mi SW of Knoxville	DSM	10630001
Cedar Creek	State Highway 156 (County Rd. G71) bridge, 1.5 mi NW of Bussey	DSM	10630002
Yellow River	County Rd X36 bridge three miles south of Highway 76	NE	10030002
Volga River	County Rd. X3C bridge north of Elkport	NE	10220002
Wapsipinicon River	County Rd. bridge 0.5 mi west of County Rd. D16, north of Independence (Otterville Access)	NE	10100001
No. Fork Maquoketa River	County Rd. north of Maquoketa, SE of Hurstville	NE	10490001
Upper Iowa River	Highway 76 bridge three mi south of Dorchester	NE	10030001
Maquoketa River	Highway 61 bridge NW of Maquoketa	NE	10490002
Wapsipinicon River	Highway 956 bridge three mi south of DeWitt	NE	10820001
Turkey River	County Rd. C43 (Jupiter Rd.) south of Garber at USGS gage	NE	10220001
Bloody Run Creek	Highway 18 bridge, 0.5 mi west of Marquette	NE	10220003
Big Spring	Big Spring Fish Hatchery	NE	30220001
Indian Creek	Gravel Rd. bridge 1.8 mi east of Green Castle, 4.8 mi north of Colfax	SK	10500001

South Skunk River	Highway 63 bridge north of Oskaloosa	SK	10620001
Cedar Creek	Gravel road bridge three mi SW of Oakland Mills	SK	10440001
North Skunk River	180th Ave. bridge SW of Sigourney, west of Highway 149	SK	10540001
West Nishnabotna River	Three mi east of Malvern	S	10650001
Chariton River	Highway 5 bridge 2.5 mi north of Centerville	S	10040001
East Nishnabotna River	Highway 59 bridge north of Shenandoah	S	10360001
East Nodaway River	State Highway 2 bridge 2.5 mi east of Clarinda	S	10730002
West Nodaway River	County Rd. J53 bridge near Shambaugh	S	10730001
Thompson Fork-Grand River	U.S. Highway 69 bridge at Davis City	S	10270001
Little Sioux River	Gravel Rd. bridge 1.2 miles west of Milford, 0.5 mi upstream of mouth of Mill Creek	W	10300001
Rock River	County Rd. B40 bridge north of Hawarden	W	10840001
Little Sioux River	County Rd. C16 bridge 5.2 mi east of Larabee	W	10180001
Floyd River	County Rd. C70 bridge three mi north of Sioux City	W	10750001
Little Sioux River	Two mi NE of Smithland	W	10970001
Maple River	At Highway 141-175 bridge 0.25 mi north of Mapleton	W	10670002
West Fork Little Sioux River	Highway 141 bridge 1.0 mi east of Hornick at USGS gage	W	10970002
Soldier River	County Rd. F20 bridge west of Pisgah	W	10430002
Boyer River	County Rd. F58 bridge 2.5 miles NE of Missouri valley	W	10430001
Cedar River	County Rd. bridge four mi SE of Charles City, near Carrville	IC	10340001
Shell Rock River	County Rd. C45 bridge in Shell Rock, below the dam downstream of USGS gage station	IC	10120001
Cedar River	County Rd. north of Janesville 0.25 mi east of Highway 218, upstream of USGS gage	IC	10090001
West Fork Cedar River	County Rd. T71 bridge in Finchford at USGS gage	IC	10070003
Beaver Creek	County Rd. T75 bridge 3.5 mi NW of Cedar Falls	IC	10070001
Black Hawk Creek	Ridgeway Avenue bridge SW of Waterloo	IC	10070004
Iowa River	County Rd. D53 bridge 1.8 mi NE of Gifford	IC	10420001
Wolf Creek	At Main St. bridge in La Porte City	IC	10070002
Cedar River	County Rd. F28 bridge at Cedar Bluff	IC	10160001
English River	County Rd. W61 bridge south of Riverside	IC	10920001

Cedar River	County Rd. G28 bridge NE of Conesville	IC	10700001
Iowa River	Highway 92 bridge at Columbus Junction	IC	10580001
Old Man's Creek	County Rd. W62 bridge 5.0 mi SW of Iowa City	IC	10520001

Table 2. Stream Monitoring Analytes

Biochemical Oxygen Demand (CBOD5)	pH (field)
Chloride	Phosphorous Series: Dissolved Orthophosphate, Total Phosphorus
Chlorophyll-A (water)	Stream Flow (Field)
Chlorophyll-A (periphyton; only at continuous temperature data logger sites)	Total Dissolved Solids
Dissolved Inorganic Carbon	Total Organic Carbon
Dissolved Organic Carbon	Total Suspended Solids
Dissolved Oxygen (Field)	Turbidity
E. coli	Volatile Suspended Solids
Nitrogen series: total ammonia-N, nitrate + nitrite-N, total kjehldahl-N	Water Temperature (Field)

Table 3. City Stream Monitoring Locations

City[1]	Stream Name	Monitoring Station Location	STORET #
Spencer US1	Little Sioux River	Highway 18 bridge NW of Spencer	10210002
Spencer US2	Ocheyedan River	County Rd. M38 bridge SW of Spencer	10210001
Spencer DS1	Little Sioux River	County Rd. M50 bridge east of Spencer	10210003
Ames US1	South Skunk River	Sleepy Hollow Canoe Access, gravel road bridge east of Highway 69 north Ames	10850003
Ames DS1	South Skunk River	County Rd. E55 bridge near Cambridge	10850002
Des Moines US1	Des Moines River	Bridge at NW 66th Ave. between Johnston and Saylorville	10770002
Des Moines DS1	Des Moines River	State Highway 316 bridge south of Runnells	10770003
Des Moines US2	Raccoon River	County Rd. R16 bridge at Van Meter (at USGS gage)	10250002
Marshalltown DS1	Iowa River	County Rd. E35 bridge east of Marshalltown	10640002
Marshalltown US1	Iowa River	State Highway 330 bridge NW of Marshalltown	10640003
Fort Dodge US1	Des Moines River	County Rd. D14 bridge NW of Fort Dodge	10940002
Fort Dodge US2	Lizard Creek	US Highway 169 bridge near Fort Dodge	10940001
Fort Dodge	Des Moines	County Rd. P59 bridge at Kalo	10940003

DS1	River		
Mason City US1	Winnebago River	U.S. Highway 65 bridge north of Mason City	10170002
Mason City DS1	Winnebago River	County Rd. S56 bridge near Portland	10170003
Waterloo US1	Cedar River	Below the dam on East Main St. in Cedar Falls	10070005
Waterloo DS1	Cedar River	County Rd. D38 bridge at Gilbertville	10070006
Cedar Rapids DS1	Cedar River	Highway 30 bridge east of Cedar Rapids	10570001
Cedar Rapids US1	Cedar River	County Rd. E36 bridge east of Palo (Blairs Ferry Rd.)	10570002
Iowa City US1	Iowa River	County Rd. W66 bridge (Dubuque St.) north of Iowa City	10520002
Iowa City DS1	Iowa River	County Rd. F62 bridge east of Hills	10520003
Ottumwa DS1	Des Moines River	Gravel Rd. (Cliffland Rd.) bridge near Cliffland SE of Ottumwa	10900002
Ottumwa US1	Des Moines River	County Rd. T67 bridge at Chillicothe NW of Ottumwa	10900003
Sac City US1	North Raccoon River	230th Street bridge NW of Sac City	10810002

Table 4. Lake Monitoring Locations

City	Stream Name	Monitoring Location	STORET #
Greenfield	Greenfield Lake	Max Depth UTM: 15T 375979, 4572919	22010001
Orient	Lake Orient	Max Depth UTM: 15T 379573, 4561558	22010002
Rosserdale	Meadow Lake	Max Depth UTM: 15T 379809, 4582727	22010003
Bridgewater	Mormon Trail Lake	Max Depth UTM: 15T 362940, 4567001	22010004
Quincy	Lake Icaria	Max Depth UTM: 15T 352763, 4545553	22020001
Rathbun	Rathbun Lake	Max Depth UTM: 15T 508937, 4519333	22040001
Blairstown	Hannen Lake	Max Depth UTM: 15T 573634, 4635018	22060001
Vinton	Rodgers Lake	Max Depth UTM: 15T 576318, 4672559	22060002
Waterloo	George Wyth Lake	Max Depth UTM: 15T 549618, 4709278	22070001
Waterloo	Green Belt Lake	Max Depth UTM: 15T 550237, 4703126	22070002
Waterloo	Meyers Lake	Max Depth UTM: 15T 558410, 4701292	22070003

Waterloo	Mitchell Lake	Max Depth UTM: 15T 556380, 4702992	22070004
Waterloo	South Prairie Lake	Max Depth UTM: 15T 544372, 4702973	22070005
Ogden	Don Williams Lake	Max Depth UTM: 15T 415706, 4662659	22080004
Waverly	Avenue of the Saints Lake	Max Depth UTM: 15T 537961, 4728720	22090001
Rockwell City	North Twin Lake	Max Depth UTM: 15T 365350, 4704019	22130001
Carroll	Swan Lake (Carroll County)	Max Depth UTM: 15T 347642, 4655305	22140001
Lewis	Cold Springs Lake	Max Depth UTM: 15T 325212, 4573260	22150001
Clear Lake	Clear Lake	Max Depth UTM: 15T 466083, 4774865	22170001
Osceola	East Lake Osceola	Max Depth UTM: 15T 437578, 4542641	22200001
Osceola	West Lake Osceola	Max Depth UTM: 15T 432315, 4543511	22200002
Dow City	Nelson Lake	Max Depth UTM: 15T 285393, 4646002	22240001
Denison	Yellow Smoke Lake	Max Depth UTM: 15T 307528, 4654905	22240002
Dexter	Beaver Lake	Max Depth UTM: 15T 398855, 4598577	22250001
Drakesville	Lake Wapello	Max Depth UTM: 15T 535946, 4518832	22260001
Leon	Little River Lake	Max Depth UTM: 15T 434236, 4511339	22270001
Pleasanton	Nine Eagles Lake	Max Depth UTM: 15T 434654, 4494280	22270002
Lamoni	Slipbluff Lake	Max Depth UTM: 15T 427894, 4500673	22270003
Danville	Lake Geode	Max Depth UTM: 15T 636027, 4519104	22290001
Okoboji	East Okoboji Lake	Max Depth UTM: 15T 328696, 4805531	22300008
Okoboji	West Okoboji Lake	Max Depth UTM: 15T 325912, 4804680	22300009
Spirit Lake	Center Lake	Max Depth UTM: 15T 326842, 4808839	22300010
Okoboji	Lake Minnewashta	Max Depth UTM: 15T 327944, 4803061	22300011
Maywood	Lower Gar Lake	Max Depth UTM: 15T 328116, 4802411	22300012
Arnold's Park	Upper Gar Lake	Max Depth UTM: 15T 328228, 4804015	22300013

Spirit Lake	Big Spirit Lake	Max Depth UTM: 15T 331520, 4816313	22300014
Wallingford	Ingham Lake	Max Depth UTM: 15T 362139, 4797517	22320001
Dolliver	Tuttle Lake	Max Depth UTM: 15T 369301, 4816565	22320002
Fayette	Volga Lake	Max Depth UTM: 15T 600391, 4750049	22330001
Hampton	Beeds Lake	Max Depth UTM: 15T 480557, 4735282	22350001
Jefferson	Spring Lake	Max Depth UTM: 15T 393380, 4657801	22370001
Yale	Springbrook Lake	Max Depth UTM: 15T378113, 4625954	22390001
Webster City	Briggs Woods Lake	Max Depth UTM: 15T 434365, 4698124	22400004
Goodell	Eldred Sherwood Lake	Max Depth UTM: 15T 453924, 4754462	22410002
Eldora	Lower Pine Lake	Max Depth UTM: 15T 493597, 4690480	22420001
Eldora	Upper Pine Lake	Max Depth UTM: 15T 494530, 4691272	22420002
California Junction	DeSoto Bend Lake	Max Depth UTM: 15T, 249885, 4602833	22430001
Woodbine	Willow Lake	Max Depth UTM: 15T 268183, 4627929	22430002
Riceville	Lake Hendricks	Max Depth UTM: 15T 536606, 4802088	22450001
Battle Creek	Crawford Creek Lake	Max Depth UTM: 15T 285029, 4683691	22470001
Ida Grove	Moorehead Lake	Max Depth UTM: 15T 295738, 4692454	22470002
Glenda Bluff’	Lake Iowa	Max Depth UTM: 15T 568838, 4609565	22480001
Kellogg	Rock Creek Lake	Max Depth UTM: 15T 512074, 4620871	22500001
Newton	Mariposa Lake	Max Depth UTM: 15T 503094, 4625097	22500002
Solon	Lake Macbride	Max Depth UTM: 15T 618577, 4627859	22520001
Coralville	Coralville Reservoir	Max Depth UTM: 15T 622374, 4620486	22520004
Tiffin	Kent Park Lake	Max Depth UTM: 15T 605607, 4619847	22520005
Center Junction	Central Park Lake	Max Depth UTM: 15T653995, 4663949	22530001
Sigourney	Lake Belva Deer	Max Depth UTM: 15T 573309, 4581050	22540001

Algona	Smith Lake	Max Depth UTM: 15T 399012, 4775266	22550001
West Point	Poll Miller Park Lake	Max Depth UTM: 15T 632111, 4508035	22560001
Palo	Pleasant Creek Lake	Max Depth UTM: 15T 598333, 4664312	22570001
Chariton	Red Haw Lake	Max Depth UTM: 15T 477130, 4538868	22590002
Larchwood	Lake Pajoha	Max Depth UTM: 14T 704893, 4806433	22600001
Barnes City	Hawthorne Lake	Max Depth UTM: 15T 545182, 4591762	22620001
Oskaloosa	Lake Keomah	Max Depth UTM: 15T 538666, 4571623	22620002
Wright	White Oak Lake	Max Depth UTM: 15T 543870, 4569294	22620003
Pella	Red Rock Reservoir	Max Depth UTM: 15T 501290, 4580136	22630001
Park Hills	Roberts Creek Lake	Max Depth UTM: 15T 495886, 4585560	22630002
Ferguson	Green Castle Lake	Max Depth UTM: 15T 511589, 4641977	22640001
Soldier	Oldham Lake	Max Depth UTM: 15T 269000, 4654430	22670001
Onawa	Blue Lake	Max Depth UTM: 15T 735070, 4658458	22670002
Villisca	Viking Lake	Max Depth UTM: 15T 329215, 4538096	22690001
Paullina	Mill Creek Lake	Max Depth UTM: 15T 282215, 4762598	22710001
Calumet	Dog Creek Lake	Max Depth UTM: 15T 296561, 4756678	22710002
Essex	Pierce Creek Lake	Max Depth UTM: 15T 301197, 4522706	22730001
Emmetsburg	Five Island Lake	Max Depth UTM: 15T 364978, 4777896	22740001
Ruthven	Lost Island Lake	Max Depth UTM: 15T 345418, 4782059	22740002
Ayrshire	Silver Lake (Palo Alto County)	Max Depth UTM: 15T, 346497, 4765895	22740003
Des Moines	Easter Lake	Max Depth UTM: 15T 453575, 4599470	22770001
Polk City	Big Creek	Max Depth UTM: 15T 439233, 4627160	22770004
Polk City	Saylorville Reservoir	Max Depth UTM: 15T 443316, 4617544	22770005
Carter Lake	Carter Lake	Max Depth UTM: 15T 256764, 4574955	22780001

Neola	Arrowhead Lake (Pottawatamie)	Max Depth UTM: 15T 283371, 4590387	22780002
Council Bluffs	Lake Manawa	Max Depth UTM: 15T 260407, 4565455	22780003
Grinnell	Arbor Lake	Max Depth UTM: 15T 522226, 4620031	22790004
Montezuma	Diamond Lake	Max Depth UTM: 15T 537006, 4603763	22790005
Diagonal	Fogle Lake	Max Depth UTM: 15T 386075, 4519009	22800001
Lake View	Arrowhead Lake (Sac)	Max Depth UTM: 15T 330917, 4684791	22810001
Lake View	Black Hawk Lake	Max Depth UTM: 15T 332801, 4684717	22810002
Davenport	Lake of the Hills	Max Depth UTM: 15T 693869, 4599242	22820001
Definace	Manteno Lake	Max Depth UTM: 15T 295175, 4636461	22830001
Harlan	Prairie Rose Lake	Max Depth UTM: 15T 314372, 4607909	22830002
Colo	Hickory Grove Lake	Max Depth UTM: 15T 469881, 4648758	22850001
Buckingham	Casey Lake	Max Depth UTM: 15T 556818, 4679425	22860001
Clutier	Otter Creek Lake	Max Depth UTM: 15T 539735, 4654672	22860002
Gladbrook	Union Grove Lake	Max Depth UTM: 15T 523237, 4663716	22860003
Lenox	Wilson Lake	Max Depth UTM: 15T 370016, 4521856	22870002
New Market	Windmill Lake	Max Depth UTM: 15T 345713, 4510506	22870003
Creston	Green Valley Lake	Max Depth UTM: 15T 383816, 4550488	22880001
Thayer	Thayer Lake	Max Depth UTM: 15T 410403, 4541704	22880002
Afton	Three Mile Lake	Max Depth UTM: 15T 398095, 4547390	22880003
Farmington	Indian Lake	Max Depth UTM: 15T 605670, 4498241	22890001
Keosauqua	Lacey Keosauqua Lake	Max Depth UTM: 15T 587001, 4507212	22890004
Keosauqua	Lake Sugema	Max Depth UTM: 15T 585556, 4504092	22890005
Ottumwa	Ottumwa Reservoir	Max Depth UTM: 15T 548264, 4539653	22900001
Milo	Hooper Pond Lake	Max Depth UTM: 15T 450572, 4569746	22910001

Milo	Lake Ahquabi	Max Depth UTM: 15T 450056, 4571501	22910002
Allerton	Bob White Lake	Max Depth UTM: 15T 466158, 4507608	22930001
Badger	Badger Lake	Max Depth UTM: 15T 402156, 4715564	22940001
Lehigh	Brushy Creek Lake	Max Depth UTM: 15T 419282, 4693457	22940002
Calmar	Lake Meyer	Max Depth UTM: 15T 588328, 4780866	22960004
Salix	Browns Lake	Max Depth UTM: 15T 720294, 4687473	22970001
Anthon	Little Sioux Park Lake	Max Depth UTM: 15T 269537, 4703182	22970002
Bristol	Silver Lake (Worth County)	Max Depth UTM: 15T 465945, 4814024	22980001
Cornelia	Lake Cornelia	Max Depth UTM: 15T 443600, 4737793	22990001
Spirit Lake	Little Spirit Lake	Max Depth UTM: 15T 328239, 4819878	270630001

Table 5. Lake Sampling Analytes

Ammonia Nitrogen as N	Total Alkalinity	Total Dissolved Solids (field)
Nitrite + Nitrate Nitrogen as N	Silica as SiO2	Specific Conductance (field)
Total Kjeldahl Nitrogen	Total Organic Carbon	Turbidity (field)
Un-ionized Ammonia	Chlorophyll a	Depth (total)
Orthophosphate as P	Phytoplankton	Depth (thermocline)
Total Phosphate as P	Zooplankton	Depth (Secchi disk)
Total Fixed Suspended Solids	Temperature (field)	
Total Volatile Suspended Solids	pH (field)	
Total Suspended Solids	Dissolved Oxygen (field)	

Table 6. Wetland Sampling Analytes

Standard Parameters – Water		
Ammonia Nitrogen as N	Total Dissolved Solids	Metals
Nitrite + Nitrate Nitrogen as N	Chloride	(Be, Cr, Ni, Cu, Zn, As, Se, Ag, Cd, Sb, Tl, Pb, Hg)

Total Kjeldahl Nitrogen	Total Organic Carbon	
Un-ionized Ammonia	Chlorophyll a	
Orthophosphate as P	Phytoplankton	
Total Phosphate as P	Zooplankton	
Total Fixed Suspended Solids	Total Alkalinity	
Total Volatile Suspended Solids		
Total Suspended Solids		
Common N/P Pesticides - Water		
acetochlor	alachlor	ametryn
atrazine	butylate	cyanazine
des-ethyl Atrazine	des-isopropyl Atrazine	dimethenamid
metolachlor	metribuzin	prometon
simazine trifluralin	propachlor EPTC	propazine
N/P Pesticides - Extended List - Water		
Bromocil	Fonofos	Dichlorvos
Butachlor	Chlorpyrifos	Disulfoton
Carbaryl	Ethoprop	Diazinon
Clomazone	Phorate	Isophenfos
Pendimethalin	Carbofuran	Methyl parathion
Triallate	Malathion	Parathion
Terbufos	Dimethoate	
Chlorinated Hydrocarbon Insecticides - Water		
Aldrin	alpha-BHC	beta-BHC
delta-BHC	Lindane (gamma-BHC)	DDD
DDE	DDT	Methoxychlor
Dieldrin	Endosulfan I	Endosulfan II
Endosulfan sulfate Endrin ketone	Endrin Heptachlor	Endrin aldehyde Heptachlor epoxide
Chlordane	Toxaphene	
PCBs - Water		
Aroclor 1016	Aroclor 1221	Aroclor 1232
Aroclor 1242	Aroclor 1248	Aroclor 1254
Aroclor 1260		
Acid Herbicides - Water		
2,4,5-TP (Silvex)	bentazon (Basagran)	picloram (Tordon)
2,4-D	dicamba (Banvel)	chloramben
2,4,5-T	2,4-DB	Acifluorfen
Bromoxynil	Chlorthal-dimethyl	Dichlorprop
Dinoseb	Pentachlorophenol	Triclopyr

Chloroacetanilide Herbicide Degradates – Water		
Acetochlor	Acetochlor OA	Acetochlor ESA
Alachlor	Alachlor	Alachlor OA
Metolachlor	Metolachlor OA	Metolachlor ESA
Alachlor ESA		
(ESA Ethane Sulfonic Acid; OA Oxanilic Acid)		
Sulfonyl Urea and Imidazolinone Herbicides - Water		
Imazapic	Chlorimuron ethyl	Primisulfuron methylTriasulfuron
Imazamox	Chlorsulfuron	Prosulfuron
Flumetsulam (a sulfonamide)	Imazapyr	Halosulfuron-methylRimsulfuron
Imazaquin	Metsulfuron methyl	Sulfometuron methyl
Imazethapyr	Nicosulfuron	Thifensulfuron methyl
N/P Pesticides – Sediment*		
acetochlor	alachlor	ametryn
atrazine	butylate	cyanazine
des-ethyl Atrazine	des-isopropyl Atrazine	dimethenamid
metolachlor simazine	metribuzin propachlor	prometon propazine
trifluralin	EPTC	
N/P Pesticides - Extended List – Sediment*		
Bromocil	Fonofos	Dichlorvos
Butachlor	Chlorpyrifos	Disulfoton
Carbaryl	Ethoprop	Diazinon
Clomazone	Phorate	Isophenfos
Pendimethalin	Carbofuran	Methyl parathion
Triallate	Malathion	Parathion
Terbufos	Dimethoate	
Chlorinated Hydrocarbon Insecticides – Sediment*		
Aldrin	alpha-BHC	beta-BHC
delta-BHC	Lindane (gamma-BHC)	DDD
DDE	DDT	Methoxychlor
Dieldrin	Endosulfan I	Endosulfan II
Endosulfan sulfate	Endrin	Endrin aldehyde
Endrin ketone	Heptachlor	Heptachlor epoxide
Chlordane	Toxaphene	
PCBs – Sediment*		
Aroclor 1016	Aroclor 1221	Aroclor 1232
Aroclor 1242	Aroclor 1248	Aroclor 1254
Aroclor 1260		
Acid Herbicides – Sediment*		

2,4,5-TP (Silvex)	bentazon (Basagran)	picloram (Tordon)
2,4-D	dicamba (Banvel)	chloramben
2,4,5-T	2,4-DB	Acifluorfen
Bromoxynil	Chlorthal-dimethyl	Dichlorprop
Dinoseb	Pentachlorophenol	Triclopyr
Chloroacetanilide Herb Degradates – Sediment*		
Acetochlor	Acetochlor OA	Acetochlor ESA
Alachlor	Alachlor	Alachlor OA
Alachlor ESA		
Metolachlor	Metolachlor OA	Metolachlor ESA
* Sediment analyses on 35 Bemis Moraine Wetlands only		

Table 7. DNR Fisheries Lake Analytes

Ammonia Nitrogen as N
Nitrite + Nitrate Nitrogen as N Total Kjeldahl Nitrogen
Orthophosphate as P
Total Phosphate as P
Total Volatile Suspended Solids
Total Suspended Solids
Chlorophyll a

Part 2. Reporting Requirements

1. UHL shall prepare and submit a quarterly status and billing report to Mary Skopec, Water Monitoring Section Supervisor, not later than fifteen calendar days after the end of each calendar quarter for all activities listed under Part 1 of this Statement of Work. The quarterly report shall identify work completed and billed by waterbody, date, site location and the variables analyzed. It also shall identify performance problems, future coordination requirements. Quarterly reports shall be submitted in electronic format (PDF).

2. For analytical results below the quantitation limit, the test quantitation limit shall be reported as "less than". Any results including fecal coliform, E. coli, and enterococci for tests run on samples after recommended holding times have been exceeded shall be so indicated or qualified as appropriate.

Part 3. General Provisions for Ambient Monitoring Projects

Unless otherwise indicated, all requests for approvals, reports, schedules and all other necessary written submissions shall be directed by UHL to the Watershed Monitoring and Assessment Section Supervisor who shall serve as Departmental representatives for all references to "the Department" or to "DNR."

Part 4. Quality Assurance

1. All monitoring activities shall be conducted in accordance with UHL and Department Quality Management Plans and applicable Project Work Plans or Quality Assurance Project Plans. For new monitoring activities, a Project Work Plan shall be developed by the Department and reviewed by UHL. When possible, DNR shall provide 10 working days for UHL review. Revisions to existing plans shall be made as identified by the Department. All Project Work Plans and Quality Assurance Project Plans shall incorporate U.S. EPA approved analytical methods unless otherwise noted in this scope of work.

2. UHL shall submit to the Department information that identifies the achievement of Quality Assurance objectives for each monitoring project. Unless otherwise specified in this scope, a report shall be submitted to the Department by April 1, 2008.

3. UHL shall submit information on data quality requirements and assessments (such as detection limit, quantitation limit, estimated accuracy, accuracy protocol, estimated precision, and precision protocol) to DNR for any sample upon request. Information on the analytical reference method, sample preservation and holding time also shall be provided if requested.

4. The UHL shall provide copies of revised Methods Manuals and Standard Operating Procedure Manuals to the Department upon request. Copies of manuals and procedures shall be available from the Iowa City laboratory.

Part 5. Data Management

1. UHL shall transfer water monitoring data to the Watershed Monitoring and Assessment Section electronically in a STORET-compatible format on a monthly basis. The data shall include the STORET station identification number, which will be provided by the Department for all station locations. UHL shall submit completed fixed monitoring results to the Department not later than fifteen (15) calendar days after the end of each month or as soon as possible following completion of all analytical determinations requested. Extra time for analysis is allowed in cases when the analytical work warrants. A notification to the submitter, that analytical results from a sample will be delayed and the reason for the delay, will be made within fifteen (15) calendar days of receipt of the sample if extra time is required for analysis.

2. UHL shall transfer water quality data to the Iowa Geological Survey via the IGS FTP site. Chemical and physical data shall be transferred in a mutually agreeable format for entry into STORET.

3. Analytical data shall be transmitted to the Department within time limits and by methods described, and UHL staff shall interact with Department staff on a routine basis to assure accurate and complete transmittal of data. UHL shall assist

in creating data management systems, data analysis, and interpretation of flow and concentration information.

4. Sampling and Sample Reporting Procedures. All samples submitted to UHL by Department or UHL staff shall be coded to a specific monitoring activity and shall include a detailed list of the analyses to be performed unless other arrangements have been made before shipment of the sample to UHL. UHL log-in procedures shall accommodate this code. A monthly report of the logged-in samples shall be provided in a mutually agreeable format. Any deviation from normal sampling procedures, such as a change in sampling location, omission of samples for analysis, etc., shall be identified to DNR in writing prior to transmittal of analytical results.

Part 6. Reports and Products

The reports and products shall include, but shall not be limited to:

- Quarterly reports (in PDF format) as described Part 1, starting October 15, 2007 and on a quarterly basis thereafter.
- Data interpretation in the form of data charts, statistical analyses, operating procedures, and other written submissions as determined through coordination of IDNR and UHL staff.